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of Engineers®**

**Water Resources  
Support Center**

Institute for Water Resources

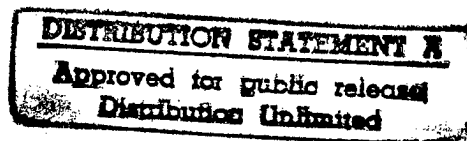
# Planning Primer

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# PLANNING PRIMER



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# Introduction

If you woke up hungry this morning, you started the day with a problem. Did you quickly survey your kitchen to find what was available for breakfast? Then you had options. Fix some cereal or cook some eggs at home. Maybe stop at a donut shop on the way to work. Or just skip breakfast altogether.

Donuts sure sounded good, but that costs more than eating at home. Skipping breakfast takes less time than fixing it, but its just too long to wait until lunch to eat, although you could grab a snack from the office cafeteria. All things considered, maybe cereal would be the best thing to do today. It's fast, it's cheap, and it will hold you over until lunch. So, what *did* you do about being hungry this morning?

Hunger is a common problem. The objective when you're hungry is to eat. Eating usually entails alternative choices of meals. Each meal has its advantages and disadvantages that have to be considered and compared to the advantages and disadvantages of other meals. Ultimately, if you are to eat you must choose. Ideally, your choice is the best of the available options.

Planning is the rational, deliberate activity that can help you make decisions about **how to solve problems**. Its step-by-step repetitive process for problem solving is a timeless tool that has value throughout our lives, both on and off the job. Whether we want to satiate our hunger, restore an ecosystem, improve navigation, approve a permit, or build a new mess hall, it is helpful to have a way to approach problems. The planning process provides such an approach. The process is basic to human nature, and it is the heart of this pamphlet.

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What is planning?  
How is planning done?  
Who does planning?  
Why do planning at all?

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This pamphlet is an **introduction to planning** for those who have had no formal training in planning and how it is done. In school, we learned how biologists, engineers, economists, attorneys, archeologists, chemists and the like approach, analyze and solve a problem. This pamphlet introduces you to the manner in which a planner approaches, analyzes and solves a problem. It shows you an approach to problem solving that differs little from the basic approach you used to decide what to do about being hungry this morning. And just who is a planner? It's anyone who is deliberately trying to solve a problem or achieve an objective. That means planning is done by people throughout your organization, not just in the Planning office.

We begin with some fundamentals. Then we'll take you, step-by-step, through a six-step planning process. While the process may appear to move along a straightforward line, it is, in reality, anything but that. But if you trust the planning process you'll always arrive at a decision. After the last step, we briefly identify some situations in which planning can help you to make decisions. If you're interested in knowing more about planning, we suggest a list of sources for additional information.

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Trust the process.

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# Fundamentals

## What Is the Planning Process?

A planning process is a **structured approach to problem solving**. A six-step planning process is commonly used in water resource development studies conducted by Federal agencies. The steps, illustrated in the figure, are:

- Step 1 - Identifying problems and opportunities.
- Step 2 - Inventorying and forecasting conditions.
- Step 3 - Formulating alternative plans.
- Step 4 - Evaluating alternative plans.
- Step 5 - Comparing alternative plans.
- Step 6 - Selecting a plan.

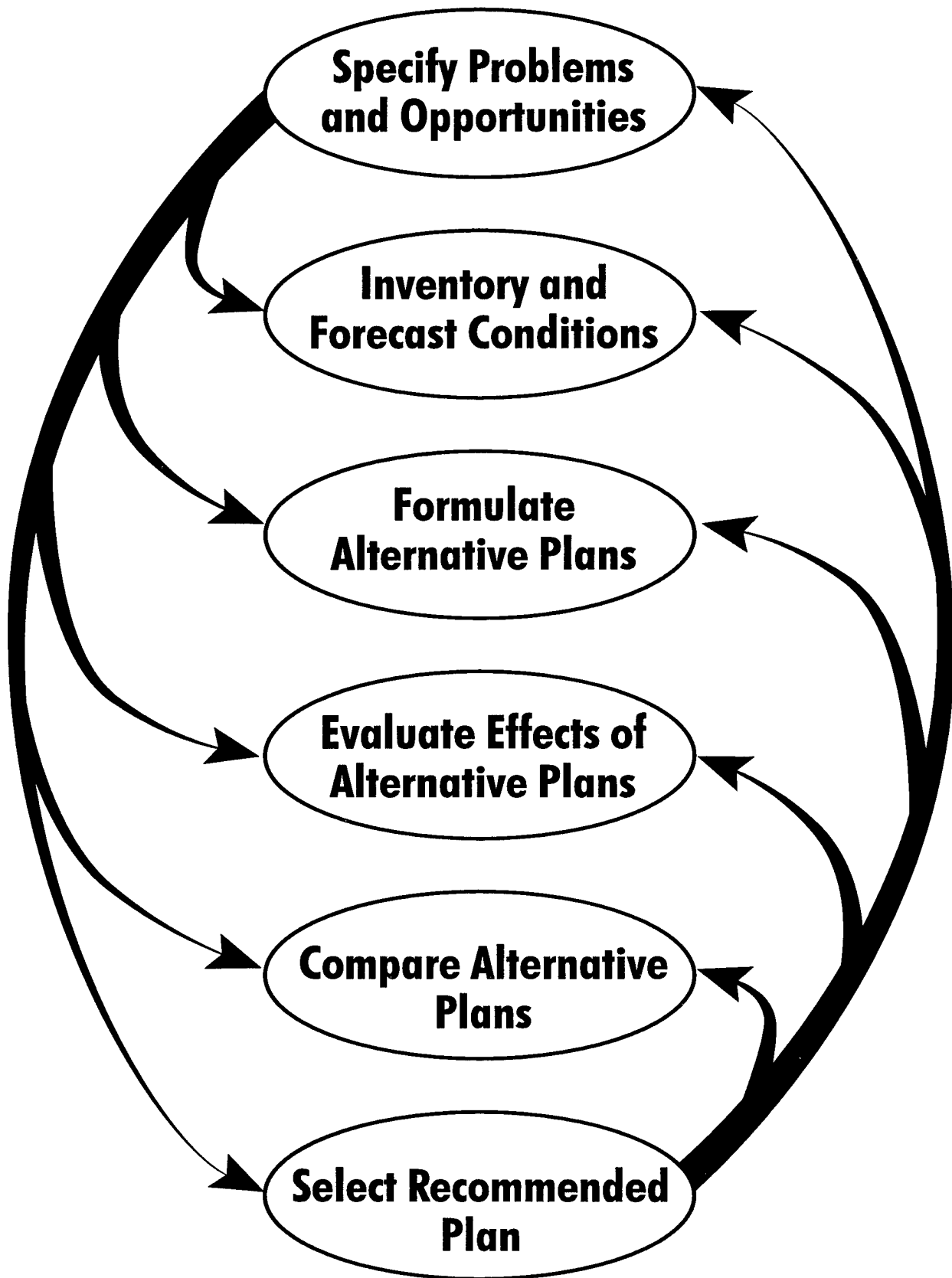
Although developed for water resources planning, this process can be a much more universal problem solving approach. It is essentially the same as the National Environmental Policy Act (NEPA) process and similar approaches.

## How Do You Do Planning?

The figure illustrates some important points about how planning is done. Ideally, you begin with Step 1 and conclude with Step 6. Reality is rarely ideal, and planning can begin with any step. Planning can begin at Step 6 when, for example, the Installation Commander points to a map and says, "I want the new mess hall here." Wherever planning begins, its structure is provided by a series of **steps**.

Because the process can begin anywhere, it is an **iterative** process. That means you will repeat the steps several times. This assures that each step is completed at least once. More importantly, you learn as you plan and repeating steps is an effective way to use what you learn. Problems become better understood. Additional information becomes available. New ideas can arise at any time, and decisions are better because of it.

Early iterations of the planning steps may only take minutes. A call from the Installation Commander about the need for a new mess hall may send you through a quick iteration of the steps. Almost instantaneously you may think: "The Fort needs a new mess hall. What are the options? The old one can be demolished and rebuilt; a new mess can be built in the meadow or on the parking lot that serves Building F. Rebuilding would be the least expensive construction but it will require temporary eating facilities. Filling the pond in the meadow will cause problems. The parking lot sounds like the best bet". There's an iteration.



In the weeks that follow, you'll do more careful thinking. You'll gather additional data. You'll discover how many people have to be fed and when. You'll see the meadow. You'll think about where displaced parkers will have to go. And you'll reconsider your initial thought process. The process may ultimately confirm your initial thoughts or it may evolve a solution you couldn't have begun to imagine that first day. It is the iterations of the planning steps that confirm early ideas and evolve new ones. Good solutions evolve over time. Iteration of the planning steps is the mechanism of this evolution.

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Planning involves:

- steps
  - iterations
  - creativity
- 

An iteration of the planning steps can be completed in as much time and with as many resources as are available. It can take five minutes, one hour, one day, two months, or three years. One of the greatest strengths of the planning process is that it is flexible. It can be repeated as often as necessary or desirable. Planning can be done in a single quick iteration or through dozens of iterations over several years. There is no time frame too short, no budget too small to apply the planning process.

Planning is a **creative** process requiring unequal measures of experience, analysis, intuition and inspiration. It can tend to be unstructured and ad hoc, and at times it can border on chaos. The planning process provides a flexible, systematic, rational framework that you can turn to when chaos threatens. The more the process is used, the better one gets at solving complex problems.

## Who Does Planning?

Anyone who must solve complex problems does planning. But no one person, no one discipline, and no one group has all the answers. Planning is not a solitary pursuit.

Planning is best done by **interdisciplinary teams**. Good planning involves the knowledge, skills and insights of professionals from many of the natural, social and engineering sciences. Planning problems are complex and an interdisciplinary team approach is often the best response to the wide range of technical issues involved in most studies. Besides, two heads are better than one, and planning results are better for having been developed from a variety of perspectives.

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Good planning is a team effort. Help comes from:

- other disciplines
  - the public
- 

## What's the Public's Role in Planning?

Planning is also a **public activity** that involves homeowners, businesses, environmental advocates, Native American tribes, interest groups, and other members of the public as well as people from Federal, State, regional and local agencies. In a democratic society, citizens have the



fundamental right to participate meaningfully in public decision making processes and to be informed about the bases for those decisions. In addition, public participation can lead to better decisions. The wisdom needed to solve complex problems is not limited to the technical experts in public agencies.

Early and continuing participation by a diversity of interests, including project sponsors, customers, partners and other stakeholders, can provide essential information and insights. Public participation increases confidence in the planning process and acceptance of its resulting decisions. The public should be involved early and often in the planning process.

## Doesn't Planning Require Guesswork?

Planning is future oriented. You look into the future to describe what will happen if no action is taken. Then you try to describe what will happen if a particular course of action is taken. When describing these future conditions you're guessing. At best, these guesses are reasoned forecasts based on experience, good information, and the best appropriate methods. At worst, they are only hunches. To present these futures as precise and certain facts would be misleading to decision makers and the public. Thus, it is important to recognize from the outset that most planning information, particularly forecasts of future conditions, is **fundamentally uncertain**. The best plans address that uncertainty explicitly in appropriate ways.

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Planning is an uncertain business.

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## Planning Step-by-Step

If you were planning, how would you do it? What questions would you ask? What tools would you use? Where would you even start?

Let's step through the planning process. We begin with a simple question - what's the problem?

# Step 1 - Identifying Problems and Opportunities

Identifying the problems and opportunities you face is the most important step in the planning process. Once the problems and opportunities are described, the next task is to define the objectives and constraints that will guide your efforts to solve those problems and achieve those opportunities.

The success of the entire planning process depends critically on the success of this first step. Every planning investigation, from a multi-million dollar multiple-purpose comprehensive investigation to a several thousand dollar preliminary study, and everything in between, should produce two sheets of paper early in the study. One of them lists problems and opportunities, the other the objectives and constraints. The first sheet says this is what is wrong here, the second says this is what you intend to do about it.

## What Are Problems and Opportunities?

Problems and opportunities exist in every community. **Problems** are existing, negative conditions. Something *is* broken, something *is* missing, and the like. **Opportunities** tend to focus on desirable, future conditions. Something *can be* made better.

Problems and opportunities are expressed in simple brief sentences. If you can't finish the sentence, "The problem is..." clearly and concisely, then nothing else that follows in the study is likely to be very clear either. Problems and opportunities are the foundations for a study's objectives and constraints.

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Example problems and opportunities:

- The industrial section of Central City is flooding.
  - Habitat along Campus Creek is deteriorating.
  - The waterfront would be a great place for people to visit.
- 

## What Are Objectives and Constraints?

**Objectives** are statements that describe the results you want to get by solving the problems and taking advantage of the opportunities you identified. **Constraints** are statements about things you want to avoid doing, or things you cannot change, while meeting your objectives. Together, objectives and constraints say what the planning effort is going to do to solve the problems and achieve the opportunities in any planning investigation.

The list of objectives and constraints becomes the planning partners' mission statement that tells people, "This is why we are undertaking this investigation." Plans will be formulated to meet the objectives subject to the planning constraints. There can be no other reason for a plan. As plans contribute to planning objectives, they solve problems and realize opportunities.

## **Where Do Objectives and Constraints Come From?**

Objectives and constraints evolve from your investigation's problems and opportunities. So, begin at the beginning. What initiated your investigation? A study authority from the Congress? A phone call from a local sponsor? A letter from a civic group? A meeting of environmental interests? What does the public believe are the area's problems and opportunities? What do knowledgeable experts think is happening - the engineers, environmental scientists, economists, and others? These sources should lead you to a list of problems and opportunities.

Rarely will you be able to fix all the problems or take advantage of all the opportunities included in your initial list. Some are the responsibility of others. Some may not be eligible for funding. One of the tasks in the first planning step is to screen problems and opportunities against these and other reasons, and focus your work on what you can truly hope to accomplish. The resulting list of problems and opportunities provides the foundation for the product of this step - objectives and constraints.

## **What Do You Do With Objectives and Constraints?**

Use them. Use them to identify the information you need to gather. Use them to identify different solutions solve problems and realize opportunities. Use them to identify the types of plan effects to be evaluated. Use them to compare different plans. Use them as reasons for selecting a plan. Use them throughout the remaining steps of the planning process.

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### **Example objectives:**

- Reduce flood damages in the Central City industrial area through year 2020.
- Restore Campus Creek riparian habitat between the 10th Street and 17th Street bridges through the year 2020.

### **Example constraint:**

- Minimize adverse effects to the Old City Dock historic site from any alternative plan.
-

## Step 2 - Inventorying and Forecasting Conditions

Step 2 is the information gathering step. It is, perhaps, the most familiar planning task. Gathering information about historic and existing conditions produces an inventory. Gathering information about potential future conditions requires forecasts.

Inventories and forecasts are generally concerned with the conditions of resources that will be affected by solutions to the problems. These resources may be natural, economic, or social. Their precise identities vary from study to study. The one thing they all have in common is that they will help shape the plans to be considered, or they will be affected, intentionally or unintentionally, by one or more of the plans to be considered.

### What Is the Historic Condition?

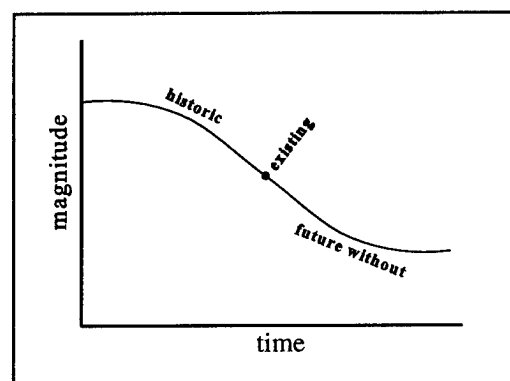
It is not easy to understand the present without some knowledge of the past. The **historic condition** describes the past. Past flow regimes, commercial port activity, land uses at a military installation, uses of a reservoir recreation area, or functions of an ecosystem are a few examples of historic data that may be very relevant to existing and future conditions in an study.

### What Is the Existing Condition?

Conditions that exist at the time of study are collectively called the **existing condition**, which may also be called the current condition. The significant natural, economic and social resources described for the historic condition will also be described in the existing condition inventory.

### What Are the Future Conditions?

Planning requires two types of forecasts. First, in this planning step, you'll forecast the most likely future **without-project condition** that describes what is expected to happen if you don't take any action to solve the problems or realize the opportunities. The without-project condition is the same as the "no action" alternative described in the National Environmental Policy Act (NEPA) regulations. Later, in planning Step 4, you'll forecast future **with-project conditions** that describe what is expected to happen if each alternative plan is implemented. The



same important resources described in the historic and existing conditions are also described for the various future conditions in order to identify differences among the various futures.

## **What Kinds of Information Do You Need?**

Two kinds of information are needed for any planning investigation. First, information is needed to adequately describe the problems and opportunities. A study of flooding problems will require hydrology and stage-damage relationships. A study of navigation problems requires information about ship channel uses. A study of restoration opportunities needs to describe how hydrology relates to ecological processes. The information gathered provides the scientific and technical evidence that a problem does or does not exist. Information about historic and existing conditions are most prominent in describing problems and opportunities.

Second, information is needed to describe significant effects of the alternative plans. You can count on needing information for some universally important effects. For example, you always need to know how much the alternatives will cost. Some types of resources identified in laws, like threatened and endangered species, will always need to be explicitly addressed. Information is also needed for other things of specific interest to planning stakeholders, such as jobs and tax bases. Information about future conditions are most prominent in describing plan effects.

## **Why Do You Need Different Future Conditions?**

If we are going to be able to identify the effects of plans, we have to make comparisons. We need to be able to say, "If we do nothing, *this* is going to happen, but if we take this course of action *that* is going to happen." In Step 4, we compare potential future conditions without a project in place to potential future conditions with a project in place in order to identify the potential different effects that a plan can cause. Effects of plans form the basis for evaluating and comparing different plans and selecting a plan for implementation.

## **When Do You Have Enough Information?**

Information gathering will most likely continue throughout the investigation. As information becomes available the picture of what needs to be done will be filled in with more detail.

Decisions are made throughout the planning process based on the information that is available. Better information makes for better decisions, but gathering information takes time and money. The key to a successful second step in the planning process is to collect only the information you need and to use all the information you collect. Do not collect information just because it is available. Collect the information you need.

## Step 3 - Formulating Alternative Plans

Plan formulation is the process of identifying specific ways to achieve planning objectives while avoiding constraints so as to solve the problems and realize the opportunities that got this whole investigation started. This is the most creative part of the planning process.

This step of the planning process produces solutions that achieve all or part of one or more of your planning objectives. Solutions are alternative plans built from management measures.

### What Is a Management Measure?

A **management measure** is a feature or an activity that can be implemented at a specific geographic site to address one or more planning objectives. It may be a “structural” feature that requires construction or assembly on-site, or it could be a “nonstructural” action that requires no construction. Management measures are the building blocks of alternative plans.

Management measures often come in different **sizes** or **scales**. They may be scaled in different dimensions or amounts (like a channel that is 30, 35 or 40 feet deep), different materials or methods, different locations, or over different implementation time frames.

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Examples of management measures:

- levee
  - channel
  - flood proof homes
  - evacuation
  - fish passages
  - spawning channel
  - plant vegetation
- 

### What Is an Alternative Plan?

An **alternative plan** is a set of one or more management measures functioning together to address one or more objectives. Sometimes a plan is one measure. More often it's a set of measures. Different plans consist of different measures, or they combine the same measures in significantly different ways.

### What Is Plan Formulation?

Plan formulation is the process of building alternative plans that meet your objectives without violating your constraints. Your list of objectives and constraints describes what you intend to do to solve your problems and realize your opportunities. Plans are formulated to address your objectives. Some plans will do that better than others. Each objective should be addressed by at least one plan.

Plan formulation can be thought of in three very general phases. First, you identify all the management measures that could be helpful in a given situation. Next, you formulate plans by mixing and matching measures into different combinations. Then, as the planning process evolves and you reconsider the formulation step, you may need or want to reformulate plans. Typically, plans are reformulated to make them more efficient, effective, complete and acceptable as more information becomes available.

## **Where Do Plans Come From?**

Plans come from people. People often begin planning with a solution in mind. Other plans will emerge throughout the course of planning.

Some tried and true ways you can use to formulate alternative plans are:

*Consult a checklist* - Lists capture past experiences in problem solving.

*Consider plans of others outside your agency* - Other interests may provide ideas about solutions. Including their plans may later be an important part of getting agreement on a recommended solution.

*Ask an expert* - Use the informed judgment and personal intuition of experienced people.

*Use a formal problem solving method* - Some methods, like brainstorming, can be effective methods for identifying management measures and plans.

## **When Is Formulation Complete?**

Formulation is complete when you have an array of plans that address the planning objectives. You'll probably repeat the formulation step many times as you continue to discover and analyze solutions.

As you'll soon see during the next planning steps, good solutions are more complete, more effective, more efficient and more acceptable than poorer solutions. Good solutions are not necessarily limited by your current authorities. Good solutions make significant contributions to the overall set of planning objectives and do not violate constraints. Good solutions are often hard to formulate.

## Step 4 - Evaluating Alternative Plans

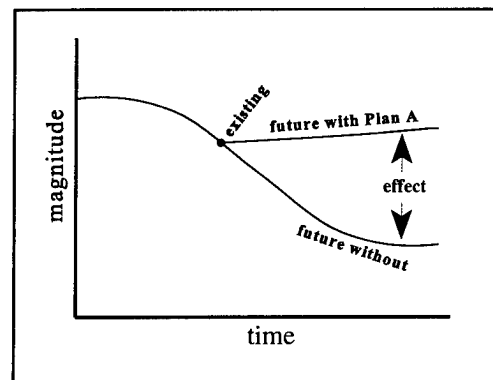
What difference does your plan make? The first three planning steps give you a list of different solutions for the problems and opportunities. The remaining three steps lead you to the best of those solutions. The evaluation step tells you what difference each plan can make. That difference is quantified by comparing without project and with project conditions to identify the effects of alternative plans.

The essential purpose of the evaluation step is to determine whether or not a plan you have formulated is worthy of further consideration. It is a qualifying step. Each plan is held up to a situation-specific set of criteria and you decide whether it deserves further consideration or not.

### How Do You Evaluate?

Evaluation consists of four general tasks. First, forecast the most likely with-project condition expected under each alternative plan. Each with-project condition will describe the same critical variables included in the without-project condition developed in Step 2.

Next, compare each with-project condition to the without-project condition. Do the comparisons reveal any differences between the two futures? Differences between with- and without-project conditions are a plan's **effects**. Effects are often called impacts.



Next, characterize effects. Common effect characteristics are:

*Magnitude* - How much or how many are affected?

*Location* - Where, at what site and over what area, is the effect?

*Timing and Duration* - When will the effect start? How long will it last? Will it occur again?

*Appraisal* - Is the effect beneficial or adverse, good or bad, desirable or not? Because such appraisals are subjective judgments, you should also explain any legal, scientific or public interest basis for them.

Finally, qualify plans for further consideration. This is a pass/fail test which asks, "Are any effects so significant that they would violate some minimum standards?" If not, the plan should be considered further. If so, the plan should be dropped from further consideration, or reformulated to lessen the effect. Some common qualifying criteria are:



*Completeness* - Does the plan include all the necessary parts and actions to produce the desired results?

*Effectiveness* - Does the plan meet the objectives to some degree? How does it stack up against constraints?

*Efficiency* - Does the plan minimize costs? Is it cost effective?

*Acceptability* - Is the plan acceptable and compatible with laws and policies?

## **What Types of Effects are Evaluated?**

Evaluation covers the full range of effects that are important to consider in making planning decisions. Because that is usually a very broad range of resources and issues, evaluation tends to be conducted in a number of technically specialized analyses. Some of the more common types of evaluation include:

*Cost estimating*, in which the dollar costs of first implementing and then operating, maintaining, monitoring, and otherwise managing a project are estimated;

*Real estate appraisals*, which estimate the dollar costs of any necessary real property interests;

*Economic benefit evaluations*, where dollars are assigned to the values of reduced flood damages, transportation cost savings, and other benefits;

*Environmental evaluations and impact assessments*, which include analyses of effects on fish and wildlife habitat, endangered species, ecosystems, historic sites and other cultural resources, water and air quality, and scenic beauty. Many of these analyses are required by law; and

*Social impact assessments*, which evaluate effects on population, health, safety, and other considerations important to affected communities.

These and other types of evaluation provide the information you need to screen and qualify plans. Information about different types of effects will help you to judge whether a plan is complete; how well it meets the objectives and addresses the constraints; how its costs stack up against its benefits; and its acceptability among interests. Plans that pass these tests move on to the next planning step of comparison.

## **Step 5 - Comparing Alternative Plans**

We need a way to tell which of the plans that qualified for further consideration is the best plan. Because no one plan is likely to be best in all categories of importance, we have to compare the effects of the various plans and make trades among the differences observed. In the previous evaluation step you looked at the effects of each plan individually. In this comparison step you look at important effects across all plans.

The best plan cannot be selected from among a set of good plans unless you have some way to compare them. It is only by comparison that a plan is no longer good enough, or that a good plan becomes the best plan. The purpose of plan comparison is to identify the most important effects, and to compare the plans against one another across those effects. Ideally, the comparison will conclude with a ranking of plans or some identification of advantages and disadvantages of each plan for use by decision makers.

### **What Do You Compare?**

Compare the effects that influence the decision you're making. Not all effects are equally important, but some effects are important most of the time. These include: some measure of how well plans do against the planning objectives and constraints; any dollar costs and benefits of plans; effects required to be considered by law or policy; and effects that are important to stakeholders and the public. Comparisons are easier to make and easier to explain when fewer things are compared. The trick is to compare all the important plan effects, but only the important effects.

### **Is Comparison Always the Same?**

Plan comparisons during early iterations can be quite abbreviated, often without a formal analysis. Ranking plans as better or worse, or identifying plans that result in more or less of certain effects can be sufficient in early iterations. Later comparisons must be more formal and analytical to illuminate differences and make choices from among a better qualified array of plans. Some types of comparison approaches are described below.

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In most Corps Civil Works planing, comparison will reveal the plan expected to produce the most economic benefits - or the "NED plan" - from among the alternatives considered.

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## What Is Benefit-Cost Analysis?

If you can measure all important effects in dollar values, such as benefits and costs, then you can calculate the net effects of each plan and easily compare net benefits among plans. Benefit-cost analysis is the most common type of comparison used in planning Civil Works projects for flood damage reduction, navigation improvements, and other traditional purposes.

## What Is Cost Effectiveness Analysis?

In environmental planning and other cases, you may be able to measure plan costs in dollars but plan benefits can't be easily quantified in monetary terms. When important project outputs can be quantified in non-monetary units it may be possible to use cost effectiveness analysis to identify least cost solutions for various levels of benefits.

## What Is Trade-Off Analysis?

Trade-off analysis helps you compare many different effects expressed in different measurements. In these cases, the investigators use their accumulated expertise, experience, and knowledge to decide, in essence, that a plan with "a little more of this" is better than a plan with "a little more of that." While there are many techniques to help identify trade-offs, final judgments boil down to people's subjective preferences for one effect over another.

Displaying effects in a table helps you make and communicate comparisons.

	PLAN A	PLAN B	PLAN C
ECONOMIC EFFECTS	+\$ 30	-\$ 5	+\$ 10
ENVIRONMENTAL EFFECTS	- 100 acres	+70 acres	+200 acres
SOCIAL EFFECTS	moderate growth	low growth	moderate growth
OTHER EFFECTS	+	--	+++

## Is Comparison Decision Making?

No, it is not. Though you may do an exemplary job throughout the planning process, up to and including comparison, decision makers still select the best plan in the next and final step.

## Step 6 - Selecting a Plan

This is the big decision making step. Countless decisions are made throughout the planning investigation. You decide which problems and opportunities to address, the planning objectives and constraints, the data to be collected and so on. You also decide which plans qualified on their own, and which plans deserve further consideration following their comparison. Plan selection in early iterations of the planning steps is a winnowing process. The final iteration of Step 6 completes the planning process. Decision makers must purposefully choose the single best alternative future path from among all those that have been considered.

### What Are Your Choices?

The first choice is always to do nothing. Planners have the burden of demonstrating that any plan that is recommended is better than doing nothing. The second choice is to select the plan that is required by law or policy. For example, the National Economic Development (NED) Plan is required in many Civil Works project planning investigations. The third choice is to do something else. Regardless of the choice, those who do the choosing must have good reasons for the final selection.

### What Is the No Action Alternative?

Taking no action is the default choice. The planning process is built on the default assumption that the Corps should do nothing to address the problems and opportunities. The agency should become involved in a project only if it is better for society than doing nothing. Hence, the planning process must convincingly demonstrate that involvement in some project is preferred over no action by the agency.

### What Is the NED Plan?

Different government programs are directed by different laws and policies, and these may require selection of a certain plan. In planning Corps' Civil Works projects, the Federal *Principles and Guidelines* require that the alternative plan with the greatest net economic benefit consistent with protecting the nation's environment - the NED plan - is to be selected unless an exception is granted. Decisions about regulatory permits, military construction, and other actions are based on other criteria. Regardless of the program, the second default action will be to select the plan that best meets the relevant legal and policy requirements.

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Corps ecosystem restoration studies use cost effectiveness, rather than an NED plan, in plan selection.

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## **Are There Other Choices?**

Frequently, a non-Federal sponsor of a Civil Works project will find it in their interest to pursue a plan that sacrifices some economic benefits for additional contributions to other objectives. A plan that is not the NED plan but is preferred by a sponsor is commonly called the locally preferred plan. Other stakeholders may favor other plans based on criteria in their interests. For example, an Installation Commander may have specific criteria for preferring one location for the mess hall over another, or a permit applicant may be pursuing an investment strategy that would favor one type of dock development over another.

## **Who Selects?**

The Corps decision making process is hierarchical, but the selection process can be bottom up or top down. In a bottom up process, the study team makes the first judgment about what plan is best based on the results of their analyses. The team then advises decision makers, including project partners, of the study findings and recommendations.

Alternatively, a selection may be a top down decision, made by senior officials in the Federal and non-Federal partnership agencies. A locally preferred plan, for example, may be preferred by the non-Federal sponsor over the team's recommendation of the NED plan.

Don't take it personally if your favorite plan is not selected. A planner's job is to do good planning and give good advice. Decision makers select the plans.

## **Are You Done Planning?**

Yes... but. Things can change at any time in a project's life cycle, and it may be necessary to account for new stakeholders, different environmental conditions, new solutions to the problems, and other unforeseeable circumstances. When that happens, the iterative planning process is still a helpful tool in solving problems and reaching decisions.

Planning - even the best planning - is not intended to be an end in itself. It is intended to help make informed decisions that lead to on-the-ground solutions for problems and opportunities. Good planning, using the iterative planning process, is always a right first step toward a solution.

# Planning Throughout the Corps

Planning is problem solving and there is no shortage of problems. The planning process presented in this pamphlet offers a structured, rational approach to solving all types of problems.

It doesn't matter if the planning responsibility is in water resources or other areas, or whether it is formal or informal, a step-by-step planning process is equally applicable to all problem solving. No matter what the type of problem may be, it is inevitable that a decision based on a robust, rational planning process is going to be better than a decision made without one.

Budgets, schedules, priorities, knowledge and other factors dictate the extent to which a structured planning process can be followed in any given case. Each planning problem is unique. The basic approach to problem solving embodied in these steps is, however, sound and proven and can be used in any problem solving situation.

Following a step-by-step process can help wherever problems are encountered. When those problems have no clear answers, planning is indispensable.

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## Types of planning in the Corps:

- Water resources development planning
    - navigation
    - flood and storm damage reduction
    - ecosystem restoration
  - Watershed planning
  - Planning assistance to states
  - Operations and maintenance planning
    - major rehabilitation
    - maintenance dredging
    - reservoir reregulation
    - master plans
  - Regulatory permits planning
    - special area management plans
    - mitigation banking plans
  - Environmental infrastructure planning
  - Drought preparedness planning
  - Military planning
    - master plans
    - military construction
    - logistics
    - project validation assessments
    - mobilization plans
  - Restoration planning
    - formerly used defense sites
    - installation restoration programs
  - Support for others planning
  - Strategic planning
-

## Planner's Library

In addition to a dictionary, and the telephone book and newspaper from the planning area, a Corps' planner's library will probably include the following materials:

***Economic and Environmental Principles and Guidelines for Water and Related Resources Implementation Studies.*** U.S. Water Resources Council. 10 March 1983. Commonly called the "Principles and Guidelines", or the "P&G".

***Guidance for Conducting Civil Works Planning Studies.*** ER 1105-2-100. Headquarters, U.S. Army Corps of Engineers. 28 December 1990.

***Digest of Water Resources Policies and Authorities.*** EP 1165-2-1. Headquarters, U.S. Army Corps of Engineers. 15 February 1996.

***Regulations for Implementing the Procedural Provisions of the National Environmental Policy Act.*** 40 CFR Parts 1500-1508. Council on Environmental Quality. 29 November 1978.

***Project Partnership Kit.*** IWR Report 96-R-10. March 1996.

***Civil Works Authorities.*** Prepared by the Institute for Water Resources for the Policy Division, Directorate of Civil Works, Headquarters, U.S. Army Corps of Engineers. October 1997.

The ideas presented in this pamphlet were taken largely from the U.S. Army Corps of Engineers' ***Planning Manual*** (IWR Report 96-R-21, November 1996). If you're interested in the subject and hungry for more, we suggest you browse the manual for additional information.

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